

# THE AMERICAN JOURNAL OF OPHTHALMOLOGY.

---

VOL. XXV.

FEBRUARY, 1908.

No. 2.

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## ORIGINAL ARTICLES.

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### A CASE OF HYSTERICAL AMBLYOPIA WITH COMPLETE RECOVERY.—NO RECURRENCE WITHIN TWO YEARS.\*

By J. W. CHARLES, M.D.,  
ST. LOUIS, MO.

On Sept. 12th, 1905, Miss C. W., 16 years of age, the largest girl of her age that I have ever seen, but with a perfect health record ("appetite good, bowels regular, menstruation normal, sleeps well"), came from her physician, Dr. J. F. Vallé, on account of a blurring of vision in near work with sensitiveness of the eyes on exposure to light or wind. The left eye felt especially "weak". Upon reviewing the case afterward, there was no suspicion of any imbalance of the nervous system, although the patient was rather difficult to examine on account of indefiniteness in her answers. She was also busy assisting her father in his work and did not have much time to spare. The ophthalmometer gave:

O. D. As. 0.75 M. vert.

O. S. As. 1+M 100°.

Ophthalmoscope,—Normal R. & L. H. 1+.

Trial—

O. D. Ah. 0.75 Mo Vert. V=15/24.

O. S. Ah. 1.25 Mo 100° Hm 1. V=15/60.

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\*Read at the January meeting of the St. Louis Ophthalmological Society.

Chronic conjunctivitis was diagnosticated, so marked that I felt that it to a certain extent accounted for the poor vision. Treatment— $\text{AgNO}_3$  gr. i- $\overline{3}$ l.

R Natr. Biborat. gr: x- $\overline{5}$ i. t.i.d.

On the two following days the patient admitted only O. D.+ 0.5 cyl. Ax. vert. (V.=15/15), and this was prescribed with a plain glass for O. S. (V.=15/60). Her lids were treated daily until Oct. 11th, then less frequently until Nov. 8th, when she was seen no more until Nov. 15th, when her father telephoned for an immediate appointment, saying that she had suddenly become blind, at first not being able to distinguish light from dark, but that then she was seeing a little better. She was "perfectly blind" ten minutes. When the patient arrived at my office, I was surprised to learn that she had come alone, because her father was not able to accompany her, and her vision with the right eye had begun to improve very slightly before she started. Her face was flushed and her cheeks showed some quivering as if she were excited or alarmed, but her manner was perfectly quiet and seemingly composed. She had never exhibited the slightest sign of malingering in the two months of treatment. She said that about ten minutes after the attack of complete blindness the right eye began to see again. She gave a history of very little work for a week previous—"a slack time". Had a sore throat on the tenth and eleventh of the month.\* Both eyes "throbbled" from the beginning of the attack, O. S. giving the most pain. Patient is not subject to attacks of fainting, but two weeks before this time she had been frightened and had fainted either in church or coming from church, I have now forgotten which; but this information led to the statement that she took a very active part in the Young People's Society of Christian Endeavor and her mother believed she probably worked too enthusiastically there.

O. D. V=20/38. Pupillary reactions normal.

O. S. V=3/192. Direct pupillary reactions sluggish; consensual, nil.

. The first indication that the patient gave of the hysterical condition was the very inconsistent answers which were yielded by the stereoscopic scotoma tests of Haitz, at times exhibiting a decided inhibition of perception; at others, perfect perception.

When I had taken her vision and found it so low, I placed the chart No. 7 in the stereoscope so that the white central spot was before the right eye. (Note that with the exception of this

central white spot, the two sides of the card, i. e., the two images, are exactly alike.) She saw the entire stereoscopic image. But when I reversed the card, she could no longer see the central white spot, but, naturally, the rest of the figure. I then placed

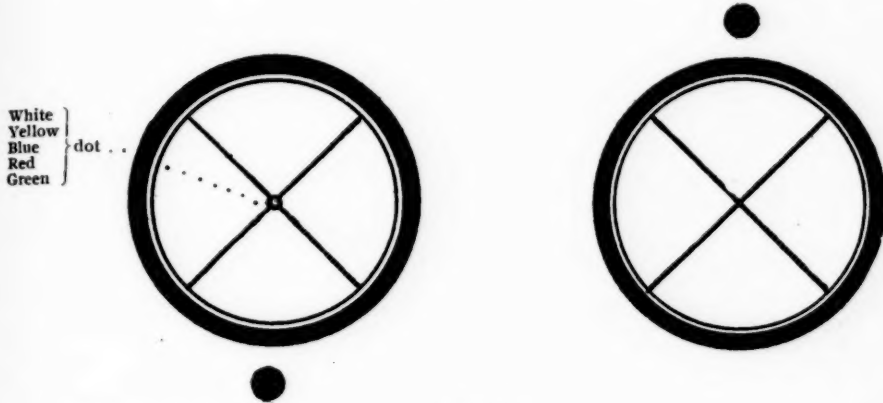


Chart No. 7.

in the stereoscope the table No. 1—and found that she saw the complete chart when it was placed before the right eye (with the skeleton-figure placed over the left); but when the card was reversed, bringing the skeleton of the figure before the right

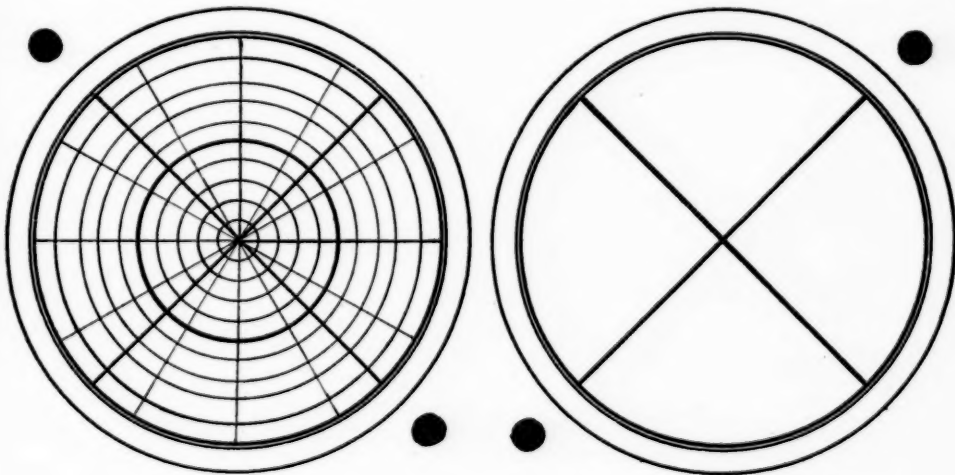
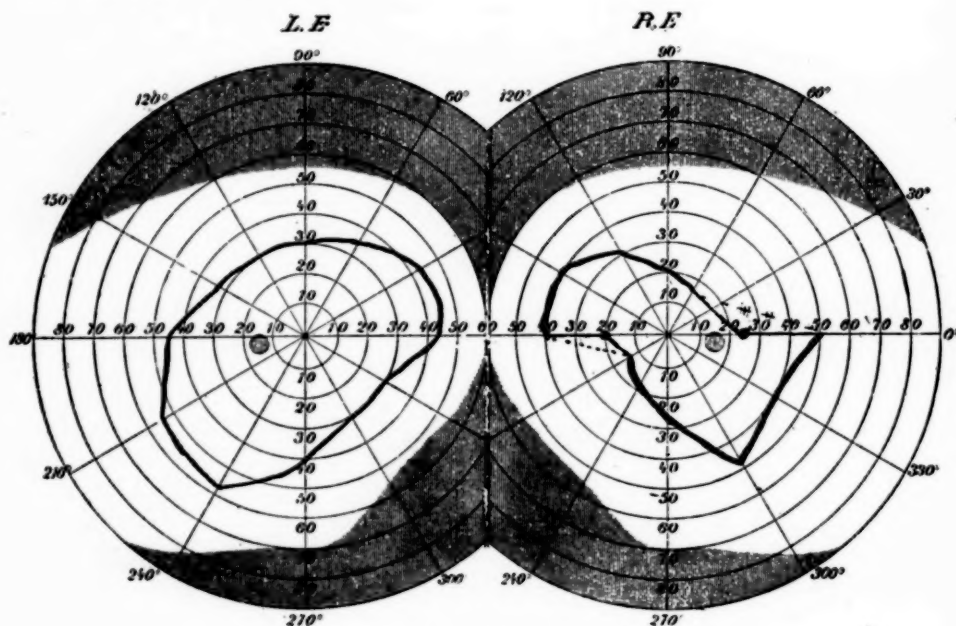


Table No. 1.

eye and the completely marked field before the left, she saw only the upper part of the circle and diameters about three-fourths of the way to the center, saying that the defect was complete

(absolute). The cards bearing the four colors were then placed before the eyes in all sorts of combinations and it was found that she could see every part of each, even to the center, naming the colors without hesitation. Then before attempting to measure the scotoma and reasoning that a patient who could see all of the colors ought to be able to see the white spot, I tried the original No. 7 with the white center before the left eye and found that the scotoma had disappeared, which accounts for the absence of its chart from this report.

Date *Nov 15<sup>th</sup> 1905.*



Test Card: 1 sq. cm.

Dotted lines represent horizontal field at end of examination.  
Dots on horizontal line represent the first measurement taken.

The fields of vision were then taken in the usual manner, and were found to be contracted in all directions. The fields for colors were for some reason not taken. Immediately afterward, the vision was again taken and found improved to

O. D. V=19/15.

O. S. V=19/150.

The cornea of the left, less-functioning, eye was very anæsthetic while that of the right was even hyperæsthetic. This is in

accordance with the findings of most observers, among them Féré in the *Twentieth-Century Practice of Medicine*, Vol. X: "There is in general a relation between the intensity and extent of the anæsthesia of the integuments and the diminished special sense. Hemianæsthetic subjects who have no narrowing of the visual field nor achromatopsia preserve the sensibility of the conjunctiva; those who have lost the power of perception of one or more colors and have a more or less marked narrowing of the visual field have also anæsthesia of conjunctiva. Those who have complete achromatopsia with almost no visual field have lost not only conjunctival sensibility but also that of the cornea." He quotes Walton and Gradenigo, that deafness and anæsthesia of the external auditory canal are proportional in intensity in hysteria. The ophthalmoscope gave absolutely normal fundi in every respect. The disc of the left eye seemed slightly redder than that of O. D., the veins of both fundi being perhaps slightly large compared with the size of the arteries but not sufficiently so as to be considered pathological.

Veronal, grains vi, was prescribed to be taken at bed-time and the patient was told to expect improvement on the morrow. On the following day

O. D. V=19/15.

O. S. V=19/75. Not improved by any glass.

By suggestion,

O. D. V=19/15+.

O. S. V=19/38. Not improved by any glass.

17th,—

R O. D.+0.5 cyl. ax. vert.+1. sph.

O. S.+1. cyl. ax. vert.+1. sph.

19th,—Glasses are correct. With them

O. D. V=19/15+.

O. S. V=19/38.

Her physician, Dr. J. F. Vallé, immediately placed the patient on tonic treatment and fresh air, counselling absolute avoidance of emotional excitement. He also explained to the parents that the case was one of loss of nerve-balance or control. They were sensible people and avoided show of sympathy. The patient was educated into the belief that she would probably not have a recurrence of the attack, but that even if she did, she need not be anxious,—that it was not an uncommon occurrence and that she could not become permanently blind from it. She has never had another attack, nor as far as Dr. Vallé is aware has she

had an hysterical outbreak in any other direction, although he has had her under observation ever since that time.

I attribute the beginning of her recovery to her father's inability to accompany her to the office (thus supplying her with a diverting influence, perhaps dismay, which enabled her to rise superior to her blindness unconsciously); to the stereoscopic examination and to the taking of the field of vision both of which caused her for the time to forget that she could not see, removing all of her accustomed landmarks for measuring her sight, and gradually bringing her by a roundabout way to the realization of her ability, which she had supposed lost, by tests to which she was not accustomed and therefore over which her inhibition could, in the nature of the case, exercise no influence.

From my two months' previous knowledge of the patient, I was convinced that she was in no way attempting to make a sensation; but that through some temporary cause, perhaps failure of accommodation (*vide* patient's refraction), she had been momentarily unable to see distinctly, and with the effort of the will to perform what is ordinarily an involuntary act came the inhibition which no effort of the will, unaided from without, could remove. We see this condition so often exemplified in the normal individual when we request a new patient to look down without giving him an object upon which to fix his attention—the effort to perform the usually involuntary act of turning the eye downward so overshadows the act itself (in the mind of the patient) that the patient simply cannot accomplish it. The effort caused the inhibition or, at any rate in this hysterical case, initiated it, whatever other causes, e. g., fright, may have contributed to its continuance.

I attribute the rapidity of improvement in the field of the left (less-functioning) eye as compared with that of the right (more acute) eye to the fact that she had already begun to recover under the diversion of a new experience undergone while the right (better) eye was being examined. I believe that rapidity in the examination of normal cases, in rather a cursory manner at first, enables the average patient to more readily describe what he sees and to recognize differences in the effect of various lenses, simply by removing distracting elements, of course always bearing in mind that this should be followed by the thorough examination. How much more then is it necessary to examine the hysterical patient briskly, leaving no room for doubt on his part and no time to wonder whether his answer is what was



expected of him and no opportunity to reconsider an answer once given. Then, if the examiner is uncertain of his visual result, the question must be put in a different form unrecognizable by the patient,—the patient must be approached from a different direction. Fields of vision especially should be taken as rapidly as possible because they are so liable to change that confusion will inevitably result if the examination drags. "The field must be examined rapidly and while the patient is alone with the observer, for hysterical patients have very rapid modifications of sensibility under slight influences, such as a noise, a change of light, etc., causing apparent irregularities in the visual field."—Féré.

Central fixation in the search for central scotoma is attained readily by means of the stereoscopic charts of Haïtz. They are also of use in cases similar to the above, although one does not expect to find a central scotoma in hysteria. It is a well-known fact that hysterical monocular amaurosis does not usually prevent binocular, or at any rate stereoscopic, vision. The cerebral dissociation is not so complete that the patient may not fix centrally and see perfectly with this external aid to vision.

Ocular evidences of the central origin of the disease are:

1st.—The possibility of stereoscopic (i. e., binocular) vision in unilateral hysterical amaurosis.

2nd.—Upon revolving before a hysteric a Newton disk of complementary colors, one of which the patient can not perceive, he is nevertheless able to name the compound color (Regnaud).

3rd.—A significant phenomenon is that "unilateral amblyopia often passes unperceived, and so may double amblyopia"; therefore its causes must be sought in the want of the usual proper connection between "mind" and body, i. e., in dissociation of cortical centers, producing some such effect as that of crossing electric wires, causing in a given tract (sensory or motor) an inhibition or an over-excitation or even a transformation of one kind of current (?) into another. An example of this latter transformation of one kind of sensation into another was first mentioned by Binet and further elaborated by Dr. F. R. Fry. Binet found that "If letters, figures or geometrical outlines be traced with the finger-nail or pencil upon the anæsthetic skin-areas, the patient can see them on a blank wall or screen". In my opinion, this was not absolutely convincing because it did not exclude malingering; but Fry (*Journ. of Ment. and Nerv. Dis.*, Aug., 1899) used a colored screen and his test showed the figures re-

produced upon the screen surrounded by the color complimentary to that of the screen,—with a green screen the figures were seen to be surrounded by red.

4th.—That the retinal elements and the optic nerves and tracts even to the perceiving portion of the neuron are not involved is further shown by the fact that a red glass placed before the affected eye and a prism over the other will yield the usual doubling of images with the red flame corresponding to the amaurotic eye.

"The fact noted by Parinaud of the re-establishment in binocular vision of central vision with persistence of the narrowing of the peripheral field in the 'amaurotic' eye indicates that there are separate centers for peripheral and for central vision, and that in central vision each eye is in relation with the two hemispheres."—(Féré.)

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#### ORBITAL ABSCESS SECONDARY TO NASAL DISEASE.\*

BY WENDELL REBER, M.D.,  
PHILADELPHIA, PA.

Professor of Diseases of the Eye in the Medical Department of Temple University.

The two cases of orbital abscess secondary to nasal disease about to be cited are put on record to lend what emphasis they may to a relation that is doubted by some and minimized by many others.

CASE 1.—Concerns a child of five, the little sister of a physician, who came under observation in the summer of 1900. The history given by the physician-brother was that three months previously the left eye had begun to slowly inflame and become sensitive to light and pressure. The right eye showed no symptoms at any time. It was thought at the time to be an ordinary conjunctivitis and the usual local treatment was instituted. Within a few days some increased temperature appeared and the eye began to be slightly proptosed. General treatment of an antiphlogistic nature was begun, but the child's appetite fell off, lassitude

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\*Presented to the Medical Society of the State of Pennsylvania at Reading, Pa., Sept. 25, 1907.



and drowsiness developed, and the child's body weight began to slowly diminish. The child remained under general treatment for several weeks during which time the left eye became more and more displaced forwards, outwards and downwards. After three months of slow progression of these physical signs (at the end of which time the child had gone into a pseudo-cachectic condition), the child was taken to Dr. Morris Booth Miller, now Professor of Surgery in the Philadelphia Polyclinic and Post-Graduate School. He justifiably considered an orbital tumor as one of the possibilities and referred her to the writer for further examination before resorting to radical measures.

At this time the left eye was displaced outwards 12mm., forward 6mm. and downwards 4mm. Between the internal margin of the cornea and the inner canthus was an indurated tense mass of tissue looking very like the anterior surface of a new growth. The child was so hyperæsthetic that anything further than the merest inspection of this area was impossible. As to the eyeball itself, the cornea was fairly clear and smooth; the pupil 5mm. and rather slow in reacting 2mm. to bright daylight; the conjunctiva and sclera in a state of chronic low grade congestion and infiltration; the ocular tension normal. The mobility of the globe was abolished. A few whiffs of chloroform were given to relax the patient and facilitate further examination, when it was found that the tumefied mass situated between the inner canthus and the inner limbus consisted entirely of tremendously hypertrophied conjunctiva and plica semilunaris. While the possibility of orbital tumor was admitted, the opinion was advanced that orbital abscess was the greater possibility and an exploratory incision was suggested. A long thin bistoury was therefore introduced near the inner canthus and made to hug the inner orbital wall being carried in about one and a half inches. Great quantities of greenish foul pus welled up, probably 2 ounces altogether. A drainage tube was then tied in place and a gauze dressing applied. Supportive general treatment followed for two days when the patient was allowed to go home. Four days later the eye had receded into almost normal position and the motility of the globe was vastly improved. There was now practically no discharge. As it had been the belief of the writer from his first observation of the case that there was a probable nasal origin of the trouble, the patient was now referred to the service of Dr. W. J. Freeman for nasal examination. The report from that department three days later stated that there had been extricated from the left nasal fossa after considerable difficulty a

swollen white bean.. This had completely occluded the fossa and by its pressure had set up a purulent rhinitis that had likely gone on to ethmoiditis, which in turn involved the orbit by way of the os planum or lamina papyracea, the weakest and thinnest portion of the inner orbital wall. Dr. W. A. Hitschler informs the writer that after an examination of many bony specimens he is convinced that a dehiscence at this point in the orbital wall is not at all infrequent. This was in all probability the path of the infection in this instance. A remarkable feature of the case is that although the eyeball was surrounded with pus, the intra-ocular structures escaped completely. Moreover, in spite of all its stretching the optic nerve preserved its functions and to-day presents a normal aspect, with full vision of 5/5.

The wound in the orbit closed in about two weeks, the globe gained in motility until the excursions in all meridians became full and complete. Such an outcome after at least two months of disordered function is unusual to say the least.

CASE 2.—Miss X. Y. Z., a trained nurse in the Rush Hospital for Consumptives (to which institution the writer is consulting ophthalmologist), was referred to me April 4, 1904, by the matron of the hospital on account of an inflamed right eye. From the patient it was learned that she had been the subject of something like grippe about two weeks previously. It began with tonsillitis with slight membrane—so she said. Then a very heavy head cold developed. There was complaint of much intense right periorbital pain, principally, however, over the region of the right frontal sinus. Five days previously the right eye began to swell and get tender. Lids swelled more and more and three days later were swollen shut. The lids were smooth and glazed and tense as a drum, also somewhat infiltrated. There was intense infiltration and chemosis of the conjunctiva, a rather steamy cornea, pupil 4mm. with a daylight reaction of 2mm.; fundus details only poorly seen but the optic nerve edges were much dimmed and the disc itself decidedly congested. There was much limitation of the ocular movements and marked intensification of the pain when the globe was pressed back into the orbit. Vision equalled R. 5/15; L. 5/9. The patient was promptly mercurialized and given frequent small doses of elixir calisayæ for the double action of the contained alcohol and the cinchona bark. Two days later the conditions were somewhat better and the patient not nearly so hyperæsthetic. She was referred to Dr. Henry J. Off, the then consulting rhinologist to

the Rush Hospital, who wrote me that the patient was the subject of a frank acute purulent frontal sinusitis. She was therefore counselled to continue her local eye measures of atropia and ice and general treatment and to remain under Dr. Off's observation. For a few days things went well with her and resolution seemed at hand, when she was guilty of gross imprudence and contracted a severe cold. The whole orbital condition flared up violently. The eye was proptosed from 6 to 8mm. and suppuration was pretty surely established. Exploratory incision was advised but as she had previously been under Dr. de Schweinitz at the University Hospital (where she was trained), and as her fiance felt that such an operation should not be done in a hospital for consumptives, she was sent to Dr. de Schweinitz at the University Hospital with a note explanatory of the situation. The same day Dr. de Schweinitz sank a knife deeply into the right orbit and liberated a large quantity of pus and detritus. Recovery, he afterward wrote me, was uneventful. Smears of the discharge showed the streptococcus present.

In connection with the case just recited, it is interesting to notice the work of Darling, pathologist to the Ancon Hospital, Panama (*Jour. A. M. A.*, Nov. 10, 1906), who "examined the accessory nasal sinuses in 37 autopsies in which death was due to pneumococcus infection. Ninety-two per cent of the cadavers showed involvement of one or more of these sinuses. Thirteen cases of pneumococcus meningitis were studied. All of these cadavers presented an inflammation of the sinuses. The inflammation was usually fibrino-purulent in character, and apparently antedated the general infection. He also found a pneumococcus sinusitis in 28 per cent of the control cases in none of which was death due to the pneumococcus infection." Darling believes the portal of entry of the pneumococcus is in most instances an accessory nasal sinus, the mucosa in the sinus becoming infected through a previous rhinitis.

Whether the foregoing case was one of influenzal or pneumococcic infection would be hard to say. The predilection of both these infections for the nasal sinuses is now an established fact. The peculiar manner in which the orbit is surrounded on all but its temporal aspect with accessory cavities makes it remarkable that infections are not more frequently transmitted to the orbital cavity. It should make ophthalmologists more wary in searching out causes for all obscure as well as manifest orbital conditions.

## MEDICAL SOCIETIES.

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### OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

*Meeting, October 17th, 1907.*

The President, Mr. MARCUS GUNN, in the Chair.

*A case of Tuberculosis of the Palpebral Conjunctiva.*—Mr. A. W. Ormond.

A girl, aged 9, was first seen on account of a swelling of the left upper lid. Subsequent examination showed some puffiness of the left side of the face and neck, with a sinus in front of the ear on the same side, the result of an abscess, and some enlarged glands beneath the sternomastoid. There was some history of phthisis on the father's side.

The left eye showed slight ptosis, and fulness of the upper lid, while on the conjunctival surface was seen a yellowish red swelling, extending along the whole length of the lid from just behind the free margin into the retrotarsal fold; on the surface were numerous granulations and some caseous material, part of which had broken down, forming an ulcer. A small piece of tissue was removed for pathological examination, and on the result of this patient was treated with tuberculin injections, guided by the record of the opsonic index taken from time to time. A portion of the material removed was inoculated into the peritoneal cavity of a guinea-pig, which caused death in 14 days, with caseous masses found post mortem in several situations.

The treatment proved entirely successful, the conjunctival condition completely cleared up, and the general health also improved.

*Proptosis in a boy, aged 7. ? Tuberculous Periostitis.*—Mr. A. W. Ormond.

When first seen there was swelling of the eyelids, on both sides, with some proptosis, more marked in the right eye than the left, and a distinct mass was felt in the right orbit at the upper and inner margin, with some signs of inflammatory reaction in the

skin and conjunctiva over it. There was no optic neuritis, and the vision was 6/9. The proptosis of the left eye was slight, but some swelling was felt at the upper and inner margin of this orbit also. The medical examination of the patient proved negative; Calmette's tuberculin test produced no reaction; a portion of the swelling removed from the left orbit gave, on pathological examination, a result in favor of tuberculosis, but another portion inoculated into a guinea-pig did not cause death but only loss of weight.

Tuberculin injections were administered, and all the local symptoms have materially improved during the last month, the ptosis and proptosis of the left side having entirely cleared up.

Tuberculous tumors of the orbit are very rare, and Mr. Ormond mentioned only two, one described by Dr. Hansell of Philadelphia and another by Dr. Newton Pitt.

Since reading this paper, the guinea-pig, which was the subject of experimental investigations, has died, 38 days after inoculation, and the post mortem examination revealed general tuberculosis.

*A case of Tubercle of Choroid and ? Retina.*—Mr. S. Stephenson.

Mrs. P. aged 35, came under observation on September 23rd, 1907, complaining of mistiness of the right eye, which had existed for 2 weeks, accompanied by slight inflammatory reaction. The family history showed that the father died of phthisis; and one sister, aged 28, was under Mr. Stephenson's care in 1898 for iridocyclitis of the left eye, with tubercle of the choroid situated at the inner side of the disc; under treatment for some years this became reduced to an atrophic pigmented area, characteristic of obsolescent tubercle.

R. V. with +4 sph.=6/36. T+1.5. The cornea showed an irregular surface, the pupil was sluggish to light, there was much keratitis punctata, and no details of the fundus could be observed. L. V. with +4.5 sph.=6/12. The patient was fairly healthy with the exception of a few enlarged glands in the neck.

On September 24th Calmette's reaction for tubercle was tried and proved positive.

On September 28th the vision in the right eye was 6/24 with correction, the cornea was clearer, and the keratitis punctata disappearing. Ophthalmoscopic examination showed at 2/3 disc's diameter above and somewhat to the outer side of papilla a soft edged, ill-defined, greyish-white area, lying beneath the superior



temporal vein, and consisting of two masses which became confluent, occupying a space about the size of the optic disc. On the nasal side of the patch was a triangular collection of pigment. Tubercle bacilli were found in the aqueous fluid. On October 2nd two minute tubercles were seen along a small retinal artery situated above the disc, and another some little distance on the temporal side near a branch of the superior temporal vein.

At the present time the vision in the right eye is, with correction, 6/18, and the fields are deficient, as shown in the chart; very little keratitis punctata is left, but the optic disc is pale.

The diagnosis was based on the ophthalmoscopic appearance, which was considered typical, the existence of glands in the neck, the sister's case, the presence of tubercle bacilli in the aqueous, and the positive Calmette's reaction. Inasmuch as the patient's health was good in every other respect, it affords another proof of the existence of obsolescent cases as described six years ago in the "Reports of the Society for the Study of Diseases of Children," and in "Bulletin et Memoires de la Société Française d'Ophthalmologie" of 1896.

The points on which Mr. Stephenson would lay stress are that tubercle of the choroid may be found at any stage and in any kind of tubercle, and that it is not unfrequently seen in connection with chronic medical and surgical tuberculosis.

In connection with this case Dr. George Carpenter said the patient showed no sign of tubercle in the body; and he also mentioned cases to show that when tubercles of the choroid were observed it did not necessarily mean that the prognosis was bound to be unfavorable, as some of the cases were those of obsolescent tubercle.

*Sarcoma developing under a plate of Calcareous Material in an old Blind Eye, with early Perforation of the Sclerotic.*—  
Mr. E. E. Henderson.

M. N., aged 64, came under observation in September, 1907, with ecchymosis of right eye. There was a history of a blow 20 years before, which resulted in deterioration of vision, though the eye did not become completely blind until 8 years later. When seen there was a large sub-conjunctival ecchymosis, the cornea was clear and no scar was visible; the iris was tremulous and adherent to a shrunken cataractous lens. On the upper and inner side of the globe a distinct nodule was to be seen.



The eye was excised, and as much of the growth was extra-ocular the orbit was exenterated.

The eye was examined pathologically, when there was found to be calcareous degeneration of the choroid; and extending from the optic nerve nearly to the equator was a new growth, which proved to be a spindle-celled melanotic sarcoma, covered by a calcified plate. The sclerotic was perforated behind the equator and the extraocular part of the globe was increased in size.

*Recurrence of Sarcoma at the Limbus.*—Mr. W. H. Jessop.

This was the case of a female, who was shown before the Society on November 19th, 1903, and the former notes of the case will be found in the *Transactions of the Ophthalmological Society*, vol. xxiv., p. 16. At that time the growth was removed and the remaining tissue freely cauterized, and the sclerotic and cornea were found to be involved.

On April 24th, 1904, there was no sign of the tumor, and all the enlarged vessels had disappeared. It was not until May 20th, 1906, when the patient again came under observation, that the blood vessels at the site of the growth were again found enlarged, and one large looped vessel was especially conspicuous below; the cornea in the position of the old scar showed a black spot of pigment, and there was one in the sclerotic near the looped vessel; also 3 or 4 pigment spots in the conjunctiva. There was no pain, only some discomfort felt. Vision was 6/18. On July 11th the condition was much improved, the pigment spots had disappeared, and there was less congestion. On March 20th, 1907, there was no sign of growth or granulation tissue, but the enlarged vessels were still present.

On October 15th, 1907, the history showed that there had been much more congestion of late, but no pain. The vision was 6/18, the pupils were regular and natural; in the region of the old wound was a slightly raised, gelatinous, vascular growth, a little pigmented, measuring 2 mm. vertically and the same horizontally. The large looped vessel below still remains, and others have appeared; the cornea looks slightly infiltrated, and there is rusty brown pigment in the sclerotic above.

In the discussion which followed excision of the eye was strongly advised.

*Cholesterol Crystals in a Cataractous Lens.*—Mr. M. L. Hepburn.

Mrs. S., aged 74, is at present under the care of Mr. Lister, at the London Hospital, to whom I am indebted for leave to show this case.

She complains of "mistiness in front of both eyes," which commenced two years ago.

R. V. 3/60, no H. M., L. V. 6/60, c+2=6/36.

The only abnormality seen is that both lenses are cataractous though not yet mature, and amongst the lenticular opacities appear many glittering bodies which are cholesterin crystals.

PAPER.

*A Case of Primary Extradural Tumor of the Optic Nerve.*—Mr. J. B. Lawford.

E. D., a female, aged 38, first came for advice on June 20th, 1906. The left eyelids were seen to be slightly puffy and slightly red; there was slight proptosis directly forwards, and movements upwards and outwards were restricted. No œdema was present, but the conjunctiva showed a little vascularity. No tenderness or pain. There was nothing to be felt in the orbit. Vision was reduced to perception of light. On ophthalmoscopic examination the media were clear, the papilla was swollen, ill-defined, and pale; the retinal vessels were dilated but no hæmorrhage could be seen. The right eye was normal; nothing of note to be recorded in the family history and no specific taint.

Early in 1902 "something wrong" was first noticed with the left eye, and in April of that year she saw Mr. Wherry, of Cambridge, who found the vision in the right eye 6/6 and in the left 6/18, which could be improved to 6/9 pt. with correction.

In 1903 and 1904 she was under the care of some other ophthalmic surgeon and was treated with drugs without any avail.

Mr. Lawford noted ?tumor of the optic nerve sheath or ?osteoma; and iodide of potassium was given for a time with no benefit. The patient was last seen on July 12th, 1907, when there was only very slight alteration in the condition. The œdema was still present and the proptosis had slightly increased; movements were now restricted in all directions; the pupils were inactive to light, and there was no vision. The optic papilla was much the same as before. No tenderness, no tumor, and no deep pulsation could be discovered, nor could the proptosis be reduced by backward pressure. There was much discomfort but no pain.

On July 18th, 1907, the eyeball was excised after a preliminary exploration, to see whether it was possible to remove the tumor without interfering with the globe itself. The tumor was found to extend from the back of the eyeball to the apex of the orbit;

and after removal there was much hæmorrhage, and the lids remained swollen for several days after the operation.

Altogether there are 21 cases described of tumor of the optic nerve, and 3 similar to this one. Parsons, in describing his case in 1903 (*Trans. Ophthal. Society.* vol. xxiii., p. 116) gave a complete list of the others, and out of the 18 cases given 12 were considered undoubted examples of this form of new growth; and three of the twelve were brought before this Society by Brailey, Arnold Lawson, and Parsons respectively. Since 1903 2 more cases have been recorded by Golowin in 1904.

Mr. Coats exhibited lantern slides of section of the growth, which showed that it was an alveolar sarcoma, 25.5mm. long and 18.75mm. broad. The main mass of the tumor proved to be outside the dural sheath, though the latter was invaded to a certain extent. The intervaginal space was occupied in places by masses of growth, but it was not completely filled by it. Microscopical examination showed the alveolar arrangement of the sarcoma cells, coarse strands of fibrous tissue running through in various directions, and from these again passed finer bundles between the individual cells. The cells were small, oval, clear staining, and with well-marked chromatin dots; and there was no extensive area of necrosis anywhere. The optic nerve was not involved but was atrophic.

#### INTRODUCTORY ADDRESS.

The President then delivered his Introductory Address, in which, after reviewing the early history of the Society, he indicated some lines on which the activity of its members might be profitably employed, and made some suggestions for increasing the usefulness of the clinical cases shown.

*Thursday, November 14th, 1907.*

The President, Mr. MARCUS GUNN, in the Chair.

#### CARD SPECIMENS.

*Sarcoma of the Sclerotic.*—Mr. W. T. Holmes-Spicer.

John S., aged 49, came to St. Bartholomew's Hospital complaining of a swelling on the right eye. In June, 1904, he was working on a road, when a "spark" flew up and struck his right eye; there was slight bleeding at the time, and a little smarting,

but nothing more was noticed until 6 months later, when his friends told him that there was a small black spot on the white part of the right eye at the outer side. This was at the place where the spark struck. He is sure that the swelling is getting larger.

Situated on the bulb of the right eye 7mm. behind the outer margin of the cornea is a conical chocolate-brown protuberance, 5mm. in height and 5mm. diameter, which is hard and attached to the sclerotic beneath. There is superficial and deep hyperæmia, and running backwards from the swelling are two ridges which appear to be pleats in the conjunctival tissue in the neighborhood. There are no enlarged lymphatic glands; the fundus is normal and the vision 6/6.

*Case of Obscure Uveitis of the Right Eye.*—Mr. J. W. Bird.

This case was under the care of Mr. Treacher Collins at the Royal London Ophthalmic Hospital.

He had noticed floating specks in front of the right eye for 14 years. The only history obtainable was that 15 or 16 years ago, while chipping the side of a vessel, a piece of iron flew into the eye; this was removed by a doctor and no further notice was taken of it. He is married and has 3 children, and there is no history of miscarriages by his wife. R. V. 6/24, L. V. 6/9.

The right eye shows signs of inflammation of the whole of the uveal tract, there is K. P. but no definite iritis; in the vitreous are some fine opacities in front, with some coarser ones further back. The retina is very œdematous, obscuring the details of the fundus, but situated 2 disc-diameters to the inner side of the papilla is a more or less well-defined patch of œdema, with gross pigmentation as well as some atrophic areas. Between this patch and the disc is a smaller spot of recent choroiditis and some cholesterin; and above this is a semi-circular fold of œdematous retina, with its concavity downwards. There is a spot of congenital opacity in the lens.

The President considered this might be the result of a foreign body, though the history was rather indefinite; also a melanotic growth was a possible solution of the case; on the other hand the inflammatory signs suggested a spontaneous choroidal affection.

PAPER.

*The Anatomy of the Pectinate Ligament and its Bearing on the Physiology and Pathology of the Eye.*—Mr. Thompson Henderson.

Mr. Henderson illustrated his paper with diagrams, models, and microscopical sections; and proceeded to show that the theory hitherto held of the pectinate ligament being formed by the splitting up of Descemet's membrane was erroneous. The appearance so described was due to the fact that the direction in which sections have been cut has generally been faulty; if accurately radial transverse sections are taken the following points can be made out. The pectinate ligament is a non-sclerosed part of the sclera, and is in direct continuity with the posterior layers of the cornea; as these fibres pass backwards they divide into two sets, a small outer one going into the sclera behind the canal of Schlemm, and an inner one which again subdivides into two portions, one going through the scleral ring and another internal to the scleral ring. The outermost part of this bundle gives attachment to the meridional fibres of the ciliary muscle, while the inner bundle passed backwards and inwards into the ciliary body, and affords attachment to the intermediate fibres of the ciliary muscle, terminating in the connective tissue stroma of the circular muscle. The inner or ciliary set is simply part of the attachment of the whole of the ciliary muscle. The open network of the ligamentum is completed by the interlacing of the circular fibres of the sclera which surround the canal of Schlemm. None of the fibres of the pectinate ligament pass round into the root of the iris, and the criterion of an accurately radial section is that it shows a direct continuity between the hyaline layer of the ciliary body and the posterior limiting layer of the iris. This arrangement opens up a connection not only between the anterior chamber and Schlemm's canal, but also between the anterior chamber and the suprachoroidal space. Mr. Henderson suggested the name of "Cribriform ligament" as more appropriate than pectinate ligament, in view of this anatomical arrangement.

He further showed diagrams to illustrate the different histological structure at varying periods of life. In a child's eye the ligament merely consists of young connective tissue cells not yet fibrosed; later on the inner part develops into fibrous tissue



owing to the traction of the ciliary muscle; and at a later period still the outer part also becomes sclerosed.

Primary glaucoma is produced by the sclerosis of the fibres of the cribriform ligament, which narrows the meshes of the filtration network so as to impede the outflow of aqueous fluid.

This sclerosis of the pectinate ligament is a normal change which gradually proceeds as age advances, the occlusion in glaucoma is a pathological excess of the ordinary physiological process.

Glaucoma, of whatever nature, is the outcome of two factors, one constant, viz., the sclerosis of the filtration network, the other accessory and variable, viz., vasomotor changes.

In the discussion which followed, Mr. Harman considered that Mr. Henderson's theory made glaucoma appear a very definite and coherent disease, and he hoped it would prove to be all that the author desired.

Mr. A. Hugh Thompson wished to know why glaucoma was not more common than it is, seeing that the sclerosis of the pectinate ligament is a normal physiological process.

Mr. Treacher Collins asked whether the eyes of any animals had been examined, since he had showed (in the *Transactions of the IXth International Ophthalmic Congress*) that the pectinate ligament in animals was very different from that of the human subject. In the latter one did not see the pillars of the iris so very well marked, whereas in animals (especially the pig and ox) the pillars are a very striking structure, and it is these pillars which give rise to the comblike arrangement of the ligament. He also wished to know the history of the case of glaucoma, a section of which was shown in the diagram, as it was possible that the iris had fallen away from the posterior surface of the cornea as a result of the hardening process.

Mr. Lister thought it strange that one finds the iritic angle always closed in primary glaucoma if the essential feature is the sclerosis of the pectinate ligament.

Mr. Coats said there was nothing in this theory to account for the occurrence of glaucoma being more commonly met with in small eyes; and it took no account of the work on the growth of the lens in advancing age; and again, according to this view, whatever the original cause of the blocking, the resulting glaucomatous eye ought to show a shallow anterior chamber, whereas in increased tension following serous cyclitis the anterior chamber is deep.



Mr. Parsons considered that Mr. Henderson's conclusions were the result of a new interpretation of well-known anatomical facts; and that it must indeed be difficult to secure a section radial enough to meet all the requirements of the case. He would want stronger proof for the continuity of the endothelium into the suprachoroidal space; and there was very little doubt about the continuation of this layer on to the anterior surface of the iris. He explained that he did not deny the absorptive power of the iris, which Mr. Henderson seemed to infer, but that its importance had been exaggerated.

Mr. Henderson, in reply, said that as regards absorption, this occurred owing to the fact that the iris root never healed after an operation, and was not due to the tearing away of the root as described by Fuchs. He said, no animal's eyes had been examined except that of a cat when Indian ink had been injected into the anterior chamber.

He explained the shallowness of the anterior chamber as secondary, owing to the inflow of fluid becoming greater than the outflow, and thus giving rise to swelling of the iris and its attachment to the posterior surface of the cornea.

*Some cases of Interstitial Keratitis from Acquired Syphilis.*—Mr. J. Herbert Fisher.

In this paper Mr. Fisher remarked on the extraordinary few cases recorded before the Society compared with the number which must have occurred in the practice of almost every surgeon. He described four cases which had come under his own observation, and made use of them to elucidate the following points:—

1. At what stage in the disease the corneal condition manifests itself.
2. Whether it is more common for one or both eyes to become attacked.
3. What interval, if any, there is between the onset of inflammatory signs in the two eyes.
4. Whether the keratitis is more or less severe than that of the congenital form.

Three of the cases were men and one a woman, the latter had acquired syphilis 14 years before coming under observation, and in the case of the men the times respectively were five, three, and five years. There were other undoubted evidences of syphilis in all cases, though no sign in any of congenital characteristics.

The actual affection of the cornea in all cases was of a typical interstitial nature, which was especially liable to take the form of an invasion from one particular part of the limbus, so that it was usual to find some part of the cornea clear and bright. There was never much vascularity, though in two cases a salmon patch was present for a time. In two of the cases some disseminated choroiditis was visible in the fundus, which in one case was more marked in the eye not affected by the corneal condition. The female patient took 7 months to recover, but a few weeks of anti-syphilitic treatment sufficed to effect a cure in the case of the male patients, and the corneal condition remained confined to one eye, probably as Mr. Fisher suggests, the result of early administration of iodide of mercury. In addition to these cases Mr. Fisher referred to one described by Mr. Lawford and himself in vol. xx of the *Transactions of the Ophthalmological Society*, and another which came under his own observation 8 or 10 years ago, where a medical man had developed a primary chancre on the lower lid in close proximity to the fornix, and in this case the secondary symptoms and the corneal condition had developed with unusual rapidity.

Mr. Fisher also described a case of interstitial keratitis affecting both mother and child, which came under his own observation at St. Thomas's Hospital in 1903. The boy, aged 12, showed a deep-seated haze of the upper part of the right cornea, with a salmon patch, while the left eye exhibited a faint nebula with characteristic arrangement of vessels; but there was no evidence of hereditary taint. The mother, who was left an orphan when quite young, showed nebulae in both corneae, with evidence of old iritis in the left, and was deaf. The father was said to be healthy. This case involves several interesting questions, viz., supposing the mother to be the subject of inherited syphilis, did she transmit the taint to the son without the intervention of the father? Or did the father reinfect the mother and so pass the condition on to the son? or did the father transmit the infection to the son without the reinfection of the mother?

In regard to the question how far succeeding generations may become influenced by the acquired syphilis of a parent, Treacher Collins has pointed out the higher mortality amongst the grandchildren of those who had acquired primary syphilis and suggested a dystrophic influence, and Dr. George Ogilvie has shown that skin affections are transmitted to the third generation but not to the fourth.

Mr. Sydney Stephenson pointed out that there were about 100 cases to be found in literature, and the average time of the development of the interstitial keratitis after the primary infection was 10.8 years. He considered that the unilateral nature of the affection was due to treatment.

Mr. Treacher Collins referred to two cases described by himself in *R. L. O. H. Reports*, vol. xvi., p. 16, where the primary infection was on the face but not in such close proximity as those of Mr. Fisher's; and yet in these cases the interstitial keratitis had followed very rapidly.

MALCOLM L. HEPBURN.

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## CORRESPONDENCE.

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### ELEVENTH INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.

Naples, 2nd - 7th April, 1909.

*First Circular.*

Naples, 1 Dec. 1907.

Honored Sir and Colleague:

At the request of Professor Angelucci, to whose care the work of preparation for the coming reunion, was confided at the last meeting of the Tenth International Ophthalmological Congress, we have constituted ourselves into a Committee of Organization for the Eleventh International Ophthalmological Congress, which meets at Naples in the spring of 1909.

Following an old-established and pleasing custom, and as some slight appreciation of their merit, we have conferred the honorary presidency on Professor Marc Dufour, president effective of the Congress of Lucerne, and the honorary vice-presidency on Dr. Landolt, member of the Organizing Committee of that Congress.

From the program elaborated by the preceding Congress, and unanimously adopted by the members thereof, we have compiled the regulations for the Eleventh International Meeting, a copy of which we have much pleasure in forwarding to you. As

soon as the final preparations for the Congress are made we will send you all other necessary notices and circulars; also particulars with regard to the journey, and the means by which we hope to render even more pleasant the short stay of the members of the Congress among us.

We invite you, however, to inform us, either personally or by means of your country's corresponding members, of your presence at the Congress, and we sincerely hope that you will not fail to take an active part in the works of reunion at Naples. This will also be an opportunity for you to enjoy the beauties, so justly celebrated, of this city.

Assuring you of the pleasure we shall have in offering you the most assiduous and cordial hospitality in our power,

We remain yours faithfully,

THE ORGANIZING COMMITTEE.

Prof. Angelucci, *President*. *Members*: Professors Addario, Albertotti, Alessandro, Bajardi, Baquis, Bardelli, Basso, Bietti, Bocchi, Bossalino, Ceraso, Cirincione, de Berardinis, de Lieto Vollaro, Desogus, Falchi, Fortunati, Francaviglia, Frugiuele, Galenga, Gatti, Gaudenzi, Gonella, Guaita, Lodato, Manfredi, Mazza, Monesi, Orlandini, Ovio, Parisotti, Pes, Petella, Puccioni, Raia, Rava, Reymond, Roselli, Santucci, Sbordone, Scalinci, Scellingo, Scimemi, Simi, Sgrossi, Tartuferi, Trombetta, Valenti.

Corresponding members for United States of America: Dr. Hermann Knapp, 26 West 40th Street, New York; Dr. G. E. de Schweinitz, 1705 Walnut Street, Philadelphia.

#### REGULATIONS OF THE CONGRESS.

1. In conformity with the vote given at the last sitting of the Congress of Lucerne it has been decided to hold the Eleventh International Ophthalmological Congress at Naples.

2. The reunion will last from 2nd to the 7th of April, 1909, with four morning sittings dedicated to discussion and one afternoon sitting for demonstrations.

3. Those ophthalmologists subscribing to the Congress and wishing to communicate their work, must forward same together with their inscription between the 1st and 30th of September, 1908. All works must be compiled in one of the official languages of the Congress, viz.: Italian, French, English, German and Spanish<sup>1</sup> and the extension of every communication must not

exceed 5 pages of the form of the paper used in the documents of the preceding Congress.

4. The documents of the Congress will be compiled in three parts: The first part will be sent before the meeting to those who shall have signified their intention to be present and will contain the printing relating to the work of the Commission nominated at the preceding Congress to refer to its official themes:

*1st. To fix, with regard to an indemnity, the value of a lost or damaged eye.<sup>2</sup>*

*2nd. Unification of the measure of the visible force and unification of the notation of the meridians of the astigmatism.* The second part, which will be forwarded shortly after, will contain the print of communications received in time and in the order of their date of reception. The third part of the documents, which will be dispatched after the Congress, will contain the minutes of the discussions and the sittings of demonstration.

5. The reunions of the Congress will be limited to the discussions only of works already published in the documents. The minutes of the discussions will be edited from the resumé presented by the author and from that of the secretaries of the sittings.

6. At the meeting of demonstration apparatus, preparation, instruments, methods of operations, projections can be presented.

7. The Congress will proceed, at the first sitting, to the nomination of a definite office of presidency, who will have the direction of works and meetings, and will fix the orders for the days of meeting.

8. Any member having obtained permission from the President will be able to speak for not more than five minutes, nor more than once during the same meeting on the same argument, unless the Assembly, being consulted thereon decides otherwise.

9. The Congress votes by rising or sitting on the deliberations being put to the meeting.

10. To the Congress is annexed an exhibition of all kinds of oculistic objects ancient and modern, of which mention will be

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1. In this Congress the committee intend making the Spanish language also official, in view of the great increase of interest which has taken place in ophthalmology in Spain and in Latin America.

2. Some members delegated to the Congress of Lucerne to treat on this subject have expressed their intention to abstain from referring to it, holding an agreement, on such an argument, difficult especially on account of the diverse legislation which governs this matter in their respective countries.

made in the third part of the Congress documents. The rules which will govern the exhibition will be indicated in a separate circular.

11. Tables necessary for works will be at the expense of the authors themselves.

12. The President of the Congress will definitely decide regarding any incident not foreseen in the present regulation.

13. The subscription for the Congress is francs 25 for members and 10 francs for every member of their family. Notification of presence, subscription and communications relative to the Congress should be addressed directly to Prof. Arnaldo Angelucci R. Clinica Oculistica in S. Andrea Delle Dame, Naples, or by means of the correspondence members of the relative countries.

The member's ticket which those taking part at the Congress will receive is strictly personal and available for no one else. The same will give free entrance to the Museums and to public monuments as well as obtain reductions from railways, and to other pleasures which will be indicated later.

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## ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.,

ST. LOUIS, MO.

### THE PREVENTIVE TREATMENT OF TRANSFERRED OPHTHALMITIS.

(So-called Sympathetic Ophthalmia.)

Charles A. Oliver (*Jour. A. M. A.*, July 27) has collated the histories of all of the cases of "sympathetic diseases" recorded as having been treated in the dispensary and indoor services of Wills Hospital in Philadelphia, during a period of more than seventy years since its opening. He finds that although there has been a large increase in the yearly number of patients treated yet there have been decidedly fewer cases of this trouble. For example during the past ten years there has been a reduction of nearly 80 per cent of these cases, although the types of cases



which are usually supposed to cause the trouble had increased 62 per cent. He offers the following reasons or causes for this reduction:

INDIRECT CAUSES.

1. More improved and better constructed machinery, which, as a rule, has contrivances for the rapid and the safe removal of extraneous and useless *débris*, etc.

2. More carefully arranged, more sanitarily built, and more adequately illuminated factories, mills, shops, etc., than formerly.

3. A broader compulsory employment of personal protectives by the workmen during their occupations (as was found by comparison and contrast of the conditions prevailing at the different places from which the patients came).

4. More prompt search for and amelioration of the original disturbing conditions. Study of the cases showed that for the past ten years the time elapsing between the onset and the first examination and treatment had greatly lessened; this in great measure having been the result of the present realization of the value of speedy relief, and the increased ease of railway communication between distant centers and the hospital.

5. Better personal condition of the patient. This was so pronounced that in many cases prognoses could be determined in great measure after a cursory inspection of the general appearance of health and cleanliness of the patient; this in addition to the race, the nationality, the sex and the age—all of which serve as greater prognostic factors than is ordinarily believed.

6. A better arrangement on the part of the hospital for immediate attention to first aid applications and remedial measures to every case that is brought to the institution. For the past six years there has been an efficient medical officer constantly on hand to attend promptly to any case applying, while two or more of the surgical staff are nearly always to be found within a few minutes' time for personal advice and action.

7. A higher grade of skill on the part of those in charge of the cases than formerly. This has been obtained through a vast increase, and now almost constant repetition, of similarly affected cases.

8. A better equipment, always available, of all of the modern instruments and appliances known, thus allowing more or less positive results for good to be obtained within the briefest periods of time after the admission of the patient.

## DIRECT CAUSES.

9. An increased certainty in intelligent action by the early employment, if necessary, of one of the most exact methods of x-ray studies in the country.

10. The prompt removal, whenever possible, of any foreign body from the interior of the eyeball by the methods which have been found to be the latest and best adapted for each special case.

11. A greater tendency toward the early removal of shattered and useless eyeballs of dangerous types by the simplest and the least complicated methods of operative procedure.

12. A better preparation of the patient for—as nearly as may be possible—aseptic operative measures or special remedial treatment in the wards of the hospital, every case being subjected to the best and the least disturbing cleansing processes for both skin and mucous membrane, each case being isolated, as far as practicable, by being placed in bed, and every affected eye being promptly treated for prevention or lessening of reaction and reduction of inflammation.

13. A more prolonged continuance of controlled therapy than formerly, thus ensuring an increased probability for permanent quiet and a greater chance of escape from subsequent disturbance.

14. Better facilities for guard over the cases for long periods of time, each patient always being personally requested and whenever possible required, through his employer, to report at fixed intervals for careful restudy of the remaining conditions.

A PRELIMINARY COMMUNICATION ON THE PATHOGENESIS OF GLAUCOMA AND THE RATIONALE OF ITS TREATMENT.

Thomas Henderson (*Ophthalmic Review*, Sept., 1907) reviews the histology and anatomy of the pectinate ligament which, at birth, is composed of fine stroma cells forming a thin membrane on the inner side of Schlemm's canal. During the course of years the connective tissue cells of this delicate network proliferate so that by middle life the pectinate ligament is entirely different from that of a child of five years of age. This fibrosis of the pectinate ligament is not a pathological process but a purely physiological one corresponding with a like change in many other connective tissues in the body. It is increased by the traction of the ciliary muscles on the ligament, which is greater in hypermetropic eyes. Henderson believes that the obstruction

and closure of the pectinate ligament, brought about by this sclerosis of the fibrous tissue in it, is the "underlying predisposing and causal factor of glaucoma."

He believes that the iris serves a double purpose. Not only does it act as movable shutter to regulate the amount of light entering the eye, but it also acts as an absorbing surface. His experiments agree with those of Nuel, Patterson and others who have injected inky fluids into the anterior chamber and found that the ink was taken up by the whole surface of the iris and especially at the pupillary and ciliary margins where the crypts are most numerous. Dilatation of the pupil, thus, not only lessens the absorbing surface of the iris but, what is of even more importance, closes the iris crypts and hinders free drainage. His argument is that as the sclerosing process goes on and the drainage through the pectinate ligament becomes less and less, a greater proportion of the aqueous is drained off through the iris and ciliary body. If these tissues are normal and there is no extra amount of aqueous formed the balance between the inflow and outflow is maintained. As, however, the aqueous is not a secretion but an exudation from the blood vessels of the ciliary body, anything which suddenly raises blood pressure, especially the local blood pressure in the eye, causes an excessive amount of aqueous to be formed which cannot be carried off through the iris and ciliary body, particularly if their absorbing power has been hindered by atrophy of the iris or by dilatation of the pupil. This raises intraocular tension, prevents the venous blood from freely returning and causes the iris to become swollen and œdematous and this condition causes the iris root to become applied to the pectinate ligament. The closing of the angle of the anterior chamber is therefore a result of the increased tension and not the cause of it.

The value of miotics in the treatment of glaucoma is not that they draw the iris away from the filtration angle, but that they contract the pupil and thus open up the iris crypts and allow the fluid to drain out, while, on the other hand, mydriatics by dilating the pupil close the crypts. An iridectomy does good by opening up a permanent drainage channel which is not influenced by the state of the pupil. This is the more evident since Henderson has shown that an iridectomy stump does not close by cicatrization, but years after operation has the appearance as if the iris had been cut post mortem.

## A PLAN FOR THE IMPROVEMENT OF VISION IN ALBINISM.

Komoto (*Klinische Monatsblätter für Augenheilkunde*, May-June, 1907), after tattooing the periphery of the cornea of a Japanese albino, found that vision was improved some but only slightly. He then conceived the idea of injecting Indian ink under the conjunctiva in order to lessen the amount of light entering through the sclera. He tried this, beginning above, where the discoloration would be partly hidden by the upper eyelid. The procedure was repeated, including all of the ocular conjunctiva, and vision arose from counting fingers at five feet to 20/200. He next injected the ink in both upper and lower eyelids with the result that vision rose to 20/50. While this was very gratifying so far as the vision was concerned, the great objection to the procedure is the dreadful disfigurement caused by the blackened conjunctiva and lids. To avoid this he tried using a whitish opaque substance as carbonate of lead employed in suspension. The reaction was slight but he found practically no improvement in vision, so that he again returned to the use of the ink with great improvement of vision. He suggests that considerable improvement might be obtained by injecting the ink deeply into the eyelids and near their margins, a slight blueing of the edges of the eyelids being the only visible disfigurement that would result. Before resorting to this method, however, it should be determined that vision can be improved by testing the eyes carefully by means of an opaque screen with a small opening, as otherwise it would be worse than useless to proceed with this treatment.

## NOTES ON A CASE OF EPISCLERITIS PERIODICA FUGAX.

Edwin Temple Smith (*Ophthalmic Review*, Oct., 1907), after referring to the rarity of this disease and describing the principal symptoms, reports a case in a man 35 years of age who had five attacks during a period of two years. In the first attack the left eye, upper outer quadrant, was affected and the patient was confined to the house 28 days; the second right eye, upper outer quadrant, confined 21 days; the third, right eye, lower inner quadrant, confined 10 days; the fourth, right eye, upper quadrant, confined 7 days; the fifth, left eye, lower quadrant, confined 14 days. The patient had had several attacks of gon-

orrhœa, which were not properly treated and he developed septic cystitis and nephritis. Later he had a severe attack of iritis lasting two months, and several months later developed a general infection of the joints involving shoulders, elbows, wrists, finger joints, knees and ankles. His general health was much impaired and was especially poor when in hot climate. Although the attacks of scleritis occurred more than a decade after the attacks of gonorrhœa, Smith believes they were caused by the ultimate product—a toxin—of the gonococcus. His conclusions are:

1. That episcleritis periodica fugax may exist in a severe form without any exudation of serum or round cells into the sclera, or overlying tissue.

2. That a period of depressed general health precedes the attack.

3. That the affection may be para-gonorrhœal (to use an analogy with syphilis) in origin.

4. That in such cases quinine in full doses is of more service than the so-called anti-rheumatic remedies.

5. That in the way of local treatment, warmth and protection are all that is needed; drugs which act on the pupils being unnecessary and probably harmful.

6. That the disease is not merely a mild and fleeting form of episcleritis, suggested by many authors, but a distinct affection, whose not least prominent characteristic is that the eye is left after the attack in apparently normal condition, both as regards structure and function.

#### INTERSTITIAL KERATITIS FROM A MODERN STAND-POINT.

S. Stephenson (*Medical Press and Circular*, London, Dec. 25) believes that in nearly all cases interstitial keratitis is secondary to disease in the anterior part of the uveal tract. Nearly twice as many cases occur in females as in males, and about two-thirds of the cases are in subjects with hereditary syphilitic stigmata; tuberculosis, acquired syphilis, influenza, malaria and sleeping sickness being other causes. Anything which locally or generally lowers resistance may excite an attack in a person with a predisposition. The second eye is involved in three-fourths of the cases although several years may intervene between the attacks of the two eyes. Recurrences, which occur in one-fifth of the cases are more intractable where mercury has not been used in the treatment. The cause of the keratitis is the deposit



and multiplication in the cornea of the *Treponema pallidum*, which come from the uveal tract.

The opsonic index is high in mild cases, even before the injection of the serum. In the more severe cases it is low before the use of the serum, but rises very rapidly during the three or four days following an injection. It is necessary to avoid inhibiting the production of opsonins which might follow the giving too large a dose of the serum. The opsonic curves explain Chantemesse's dictum of 1902 that: "The graver the illness the smaller the dose of the serum."

#### IS THE OCULAR REACTION TO TUBERCULIN FREE FROM DANGER FOR THE EYE?

De LaPersonne (*Presse Medicale*, Dec. 7), having investigated the reported cases of alleged injury to the eye from the instillation of tuberculin for diagnostic purposes, found six cases in which complications, of the nature of an ulcerovascular keratitis, arose, with no impairment of vision, however. All of them but one had lesions of the cornea previous to the instillation. Two cases of intraocular complications, iridocyclitis, in elderly subjects were also found. From his study of these cases he concludes that "Calmette's 'ophthalmo-reaction' is harmless for the eye, but that the complications exceptionally observed impose caution in its application, although no absolutely certain direct connection between the accidents observed and the instillations can be demonstrated in any instance. It is wise never to instil the tuberculin until after a thorough examination of both eyes. It is also best to refrain from applying this method in differentiation of lesions of the eyeball, deep or superficial, although it might be used in the diagnosis of affections of the lids, orbit and lacrimal passages. The reaction is generally most pronounced in children. In the elderly so many factors may intervene that the result is liable to be misleading, while, if complications do occur, they may take a long time to subside. The complications which he has been studying, did not manifest themselves, nor did the reaction, until from ten to twenty days after the instillation. It seems almost as if some local or general intercurrent infection might be able to rearouse or to maintain the reaction in a tuberculous individual."